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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,468	10/28/2003	Susumu Aihara	590146-2015	5615

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MATHEW K. RYAN
c/o FROMMER LAWRENCE & HAUG LLP
745 Fifth Avenue
New York, NY 10151

EXAMINER

AMARI, ALESSANDRO V

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 02/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/695,468

Applicant(s)

AIHARA ET AL.

Examiner

Alessandro V. Amari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/28/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii US 5,216,551 in view of Anderson et al US 6,238,781.

In regard to claim 1, Fujii teaches (see for example, Figures 4, 6) a reflecting mirror comprising a plastic substrate as described in column 4, lines 60-65, and a stacked structure formed on the plastic substrate as shown in Figures 4 and 6, the stacked structure including an underlayer film (2f, 12a) made of aluminum oxide as described in column 1, lines 49-58 and column 6, lines 30-47; a reflection film (3f, 13a) formed on the side opposite to the plastic substrate with respect to the underlayer film as shown in Figure 6.

However, in regard to claim 1, Fujii does not teach a water-repellent film having a compound containing fluorine and silicon, which is formed on the side opposite to the underlayer film with respect to the reflection film.

In regard to claim 1, Anderson et al does teach a water-repellent film having a compound containing fluorine and silicon, which is formed on the side opposite to the underlayer film with respect to the reflection film as described in column 5, lines 53-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the water repellant film of Anderson et al in the reflecting mirror of Fujii in order to provide for a water repellant function for the mirror as well as increased abrasion resistance.

Regarding claim 2, Fujii teaches that the reflection film is made of silver or aluminum as described in column 4, lines 56-65.

Regarding claim 4, Fujii teaches that the underlayer film has a physical film thickness of not less than 40 nm nor more than 200 nm as described in column 5, lines 4-7.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii US 5,216,551 in view of Anderson et al US 6,238,781.

Regarding claim 3, Fujii in view of Anderson et al teaches the invention as set forth above but does not teach that the water repellent film has a physical film thickness of not less than 1 nm nor more than 10 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the water repellent film thickness to be not less than 1 nm nor more than 10 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to adjust the water repellent film thickness layer for the purpose of providing the optimum water repellant function and to increase protection for the underlying layers of the stacked structure. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235

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4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii US 5,216,551 in view of Anderson et al US 6,238,781 and further in view of Inoue JP 05-127004.

Regarding claim 5, Fujii in view of Anderson et al teaches the invention as set forth above but does not teach that the stacked structure further includes a reflectance adjusting layer sandwiched between the reflection film and the water-repellent film.

Regarding claim 5, Inoue teaches (see drawing 1) a reflectance adjusting layer (6) sandwiched between the reflection film and the water-repellent film.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the reflectance adjusting layer of Inoue in the reflecting mirror of Fujii in view of Anderson et al in order to improve the spectral reflectivity of the mirror.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii US 5,216,551 in view of Anderson et al US 6,238,781 and further in view of Shimabukuro et al US 4,457,598.

Regarding claim 6, Fujii in view of Anderson et al teaches the invention as set forth above but does not teach that the stacked structure further has a protective film containing silicon monoxide (SiO), which is sandwiched between the reflection film and the water-repellent film and located closest to the water repellent film.

Regarding claim 6, Shimabukuro et al teaches (see Figure 1) that the stacked structure further has a protective film (14) containing silicon monoxide (SiO), which is

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sandwiched between the reflection film and the water-repellent film and located closest to the water repellent film as described in column 3, lines 4-14.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the protective film as taught by Shimabukuro et al in the reflecting mirror of Fujii in view of Anderson et al in order to provide additional protection for the reflection film.

Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grewal et al US 4,482,209 teaches a reflecting mirror with a substrate, underlayer layer made of aluminum oxide and a reflection film.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (571) 272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ava 
24 January 2005


MARK A. ROBINSON
PRIMARY EXAMINER